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| 10/006,124 | 12/10/2001 | Wuu-Trong Shieh | MR2707-5 | 1733 |

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| EXAMINER | |
|---|---|
| ALBERTALLI, BRIAN LOUIS | |
| **ART UNIT** | **PAPER NUMBER** |
| 2655 | |

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/006,124 | SHIEH, WUU-TRONG | |
| | Examiner | Art Unit | |
| | Brian L Albertalli | 2655 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *10 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: as used throughout the specification and claims, the term "speech synthesis unit" (corresponding to elements 24 and 34 in Fig. 4) is objected to because the "speech synthesis units" appear to be simply D/A converters. For example, on page 7, the PCM "synthesis unit" 24, "is connected to encode register 41 to convert the digitized codes from the encode register 41 to an analog signal". This description provides no indication that the PCM "synthesis unit" 24 provides any type of functionality related to speech synthesis, but simply converts a digital signal which happens to be encoded speech into an analog signal in order to drive a speaker. This is the same function that any standard PCM DAC provides. Similarly, on page 7, the PWM "speech synthesis" unit 34 "is also connected to the encode register 41 to convert the digitized codes from the encode register 41 to an analog signal and send out the current of the analog signal with a push-pull type through the first input terminal VO1 and a second output terminal VO2". Again, this description provides no indication that the PWM "speech synthesis" unit 34 provides any type of functionality related to speech synthesis, but simply converts a digitized signal which happens to be encoded speech into a push-pull type to drive a speaker. This is the same function that any standard PWM driver provides.

For the purposes of examination the "speech synthesis units" have been interpreted herein as any unit that converts digitized codes to an analog signal.

Appropriate correction is required.

### *Claim Objections*

2. Claims 1-13 are objected to because of the following informalities: as described above in reference to the specification, the use of the term "speech synthesis units" is objected to. For the purposes of examination the "speech synthesis units" have been interpreted herein as any unit that converts digitized codes to an analog signal.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winbond (*High Fidelity Power Speech Data Sheet*), in view of Voltz (U.S. Patent 6,859,538).

In regard to claim 1, Winbond discloses an integrated speech synthesizer (page 2, Block Diagram) comprising:

a sound encode register for storing encoded digitized sound data (page 2, a speech synthesizer block provides accesses ROM);

a first speech synthesis unit connected to said sound encode register for converting said digitized sound data from said sound encode register to a first analog signal and sending out said first analog signal through a first output terminal (page 2, in

DAC current output mode, an analog signal is output through the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, AUD/SPK+ entry in Pin Description table).

a second speech synthesis unit connected to said sound encode register for converting said digitized sound data from said sound encode register to a second analog signal and sending out said second analog signal through a second output terminal and said first output terminal (page 2, in PWM output mode, an analog signal is output through the SPK- terminal in addition to the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, SPK- entry in Pin Description table); and

a state register (page 7, option control functions are declared which define which mode, i.e. DAC or PWM output, will be used, see Voice Output Type entry in Output Control Function table; as well as page 8, 3rd paragraph) ;

wherein said speech synthesizer is automatically set up with an initial value in reference to said state stored in said state register (the speech synthesizer's output mode is selected in accordance to the voice output type declared, see Voice Output Type entry in Output Control Function table; as well as page 8, 3rd paragraph).

Winbond does not disclose that the state register is connected to said first output terminal for storing the state of said first input terminal before said speech recognizer is enabled.

Voltz disclose a system for automatically setting up an audio system according to the speaker connection. The system includes a first output terminal (Fig. 2, 124) for

identifying the speakers to the audio system (column 3, lines 61-62 and column 4, lines 45-61).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Winbond so that the state register (option control functions) were initiated according to the identification of the speaker types, because a speaker connected incorrectly for a given output mode (e.g. a speaker connected to only the AUD/SPK+ while the speech synthesizer was in PWM mode) would not function correctly, therefore automatically identifying the speaker would ensure the correct mode for a given speaker was selected.

In regard to claim 2, Winbond discloses the first speech synthesis unit is a PCM speech synthesis unit (the D/A used for DAC current output mode is an 8-bit digital code converter, page 1, Features section, line 4).

In regard to claim 3, Winbond discloses said first output terminal is in a high impedance state before connected to a speaker (AUD/SPK+ would be a floating pin if not connected to a speaker, and thus be in a high impedance state).

In regard to claims 5-7, Winbond discloses the second speech synthesis unit is a PWM speech synthesis unit (page 1, Features section, line 4).

Claims 4, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winbond, in view of Applicant's admitted prior art.

Winbond discloses a first speech synthesis unit can be enabled when said speaker is connect to said first output terminal only (page 2, in DAC current output mode, an analog signal is output through the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, AUD/SPK+ entry in Pin Description table).

Winbond does not disclose the first output terminal is in a low level or that a drive circuit is connected to said first output terminal only.

Applicant's admitted prior art discloses that when in a current mode, the output of a speech synthesizer is connected to a drive circuit (Fig. 2, transistor 26, page 2, lines 9-11). The Applicant's admitted prior art further discloses that the transistor 26 is arranged so that a resistor 28 is connected to the output terminal of the current mode speech syntheses unit (see Fig. 2). This would necessarily pull the output of the first output terminal to a low level.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Winbond to include a drive circuit connected to the first output terminal, in order to provide a signal that could drive a speaker and produce audible sound.

In regard to claims 8 and 9, Winbond discloses said second speech synthesis unit can be enabled when said speaker is connected to said first and second output

terminals (page 2, in PWM output mode, an analog signal is output through the SPK- terminal in addition to the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, SPK- entry in Pin Description table).

Winbond does not disclose said second terminal is in a high level before said speech synthesizer is enabled or that said first output terminal is in a high level.

Applicant's admitted prior art discloses that a PWM speech synthesis unit uses a high level (40H) as an initial value, so it is not necessary to add a rising wave before and after the sound data. Furthermore, Applicant's admitted prior art discloses both output terminals are connected to the PWM speech synthesis unit (see Fig. 3). This would necessarily pull the output of the first output terminal to a high level (the same level as said second output terminal).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Winbond to put said second terminal in a high level before said speech synthesizer was enabled, so that it would not be necessary to add a rising wave before and after the sound data.

Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winbond, in view of Voltz, and further in view of Applicant's admitted prior art.

In regard to claims 10 and 11, Winbond discloses a method for an integrated speech synthesizer with a PCM and direct drive type speech synthesis units, said PCM speech synthesis unit enable to send out a first analog signal from a first output

terminal, said direct drive type speech synthesis unit enable to send out a second analog signal from a second output terminal and said first output terminal (page 2, in DAC current output mode, an analog signal is output through the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, AUD/SPK+ entry in Pin Description table; in PWM output mode, an analog signal is output through the SPK- terminal in addition to the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, SPK- entry in Pin Description table), said method comprising:

setting up said speech synthesizer with an initial value in reference to said state stored in said state register (page 7, option control functions are declared which define which mode, i.e. DAC or PWM output, will be used, see Voice Output Type entry in Output Control Function table; as well as page 8, 3rd paragraph).

Winbond does not disclose storing a state of said first output terminal with a state register before said speech synthesizer is enabled.

Voltz disclose a system for automatically setting up an audio system according to the speaker connection. The system includes a first output terminal (Fig. 2, 124) for identifying the speakers to the audio system (column 3, lines 61-62 and column 4, lines 45-61).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Winbond so that the state register (option control functions) were initiated according to the identification of the speaker types, because a speaker connected incorrectly for a given output mode (e.g. a speaker connected to only the

AUD/SPK+ while the speech synthesizer was in PWM mode) would not function correctly, therefore automatically identifying the speaker would ensure the correct mode for a given speaker was selected.

Neither Winbond nor Voltz disclose sending out a high preset voltage from said second output terminal.

Applicant's admitted prior art discloses that a PWM speech synthesis unit uses a high level (40H) as an initial value, so it is not necessary to add a rising wave before and after the sound data. Furthermore, Applicant's admitted prior art discloses both output terminals are connected to the PWM speech synthesis unit (see Fig. 3). This would necessarily pull the output of the first output terminal to a high level (the same level as said second output terminal).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Winbond and Voltz to put said second terminal in a high level before said speech synthesizer was enabled, so that it would not be necessary to add a rising wave before and after the sound data.

In regard to claim 12, Winbond discloses a first speech synthesis unit can be enabled when said speaker is connect to said first output terminal only (page 2, in DAC current output mode, an analog signal is output through the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, AUD/SPK+ entry in Pin Description table).

Neither Winbond nor Voltz disclose the first output terminal is in a low level or that a drive circuit is connected to said first output terminal only.

Applicant's admitted prior art discloses that when in a current mode, the output of a speech synthesizer is connected to a drive circuit (Fig. 2, transistor 26, page 2, lines 9-11). The Applicant's admitted prior art further discloses that the transistor 26 is arranged so that a resistor 28 is connected to the output terminal of the current mode speech syntheses unit (see Fig. 2). This would necessarily pull the output of the first output terminal to a low level.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Winbond and Voltz to include a drive circuit connected to the first output terminal, in order to provide a signal that could drive a speaker and produce audible sound.

In regard to claim 13, Winbond discloses said second speech synthesis unit can be enabled when said speaker is connected to said first and second output terminals (page 2, in PWM output mode, an analog signal is output through the SPK- terminal in addition to the AUD/SPK+ terminal, see also, page 1, General Description section, lines 5-6 and Features section, line 4; as well as page 3, SPK- entry in Pin Description table).

Winbond does not disclose said second terminal is in a high level before said speech synthesizer is enabled or that said first output terminal is in a high level.

Applicant's admitted prior art discloses that a PWM speech synthesis unit uses a high level (40H) as an initial value, so it is not necessary to add a rising wave before

and after the sound data. Furthermore, Applicant's admitted prior art discloses both output terminals are connected to the PWM speech synthesis unit (see Fig. 3). This would necessarily pull the output of the first output terminal to a high level (the same level as said second output terminal).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Winbond to put said second terminal in a high level before said speech synthesizer was enabled, so that it would not be necessary to add a rising wave before and after the sound data.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Interactive Speech (*RSC-200/264T Datasheet* and *Voice Dialer Speech Recognition Dialing IC*) and Sunplus (*SPC 81A Datasheet*) disclose additional integrated speech synthesizers with PCM and PWM output. Muri et al. (U.S. Patent 5,382,915) disclose a system that changes from PWM to analog output according to the input signal. Porambo et al. (U.S. Patent 5,450,624) disclose a system for determining the connection status of speakers. Sahyoun (U.S. Patent 5,532,649) disclose a system that automatically adjusts output resistance according to the type of speaker. Takahashi et al. (U.S. Patent 5,592,559) disclose a typical PWM driver circuit. Whitecar et al. (U.S. Patent 5,815,584) disclose a system that automatically detects short circuits in speakers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLA 6/7/05

SUSAN MCFADDEN
PRIMARY EXAMINER